

5R4GYB

Full-Wave Vacuum Rectifier

For Industrial & Military Applications

GENERAL DATA

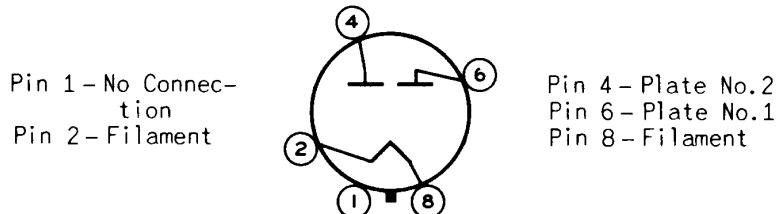
Electrical:

Filament, Coated:^a

Voltage (AC or DC) 5 volts
Current 2 amp

Mechanical:

Operating Position Vertical, base down or up, or
Horizontal with pins 2 and 4 in vertical plane
Maximum Overall Length 4-1/4"
Maximum Seated Length 3-11/16"
Diameter 1.438" to 1.562"
Bulb T12
Base Short Medium-Shell Octal 5-Pin Micanol
with External Barriers, Style B, Arrangement 1
(JEDEC Group 1, No. B5-121)
Basing Designation for BOTTOM VIEW 5T



FULL-WAVE RECTIFIER

Maximum Ratings, Absolute-Maximum Values:

For altitudes up to 40000 20000 feet

PEAK INVERSE PLATE VOLTAGE . . . 2650 max. 3100 max. volts

AC PLATE SUPPLY VOLTAGE PER PLATE (RMS, without load) . . . See Rating Chart I

PEAK PLATE CURRENT PER PLATE . . . 715 max. 715 max. ma

DC OUTPUT CURRENT PER PLATE . . . See Rating Chart I

HOT-SWITCHING TRANSIENT PLATE

CURRENT PER PLATE b b

BULB TEMPERATURE (At hottest point on bulb surface) 230 max. 230 max. °C

Typical Operation:

With capacitor-input filter

For altitudes up to 40000 20000 feet

AC-Plate-to-Plate Supply

Voltage (RMS, without load) . . . 1400 1500 2000 volts

Filter-Input Capacitor 20 20 20 μf

Total Effective Plate Supply

Impedance Per Plate^c 225 250 375 ohms



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DC Output Voltage (Approx.) at Input to Filter:				
At half-load ma. =				
75. - 910 1210 volts				
125	750	-	-	volts
At full-load ma. =				
150	-	800	1040	volts
250	605	-	-	volts
Voltage Regulation (Approx.):				
Half-load to full-load				
current	145	110	170	volts
DC Output Current	250	150	150	ma
<i>With choke-input filter</i>				
For altitudes up to		40000	20000	feet
AC Plate-to-Plate Supply				
Voltage (RMS, without load) .	1500	1900	volts	—
Filter-Input Choke.	5	10	henrys	—
DC Output Voltage (Approx.) at				
Input to Filter for dc output ma. =				
87.5.	-	800	volts	—
125	600	-	volts	—
175	-	760	volts	—
250	560	-	volts	—
Voltage Regulation (Approx.):				
Half-load to full-load				
current	40	40	volts	—
DC Output Current	250	175	ma	—

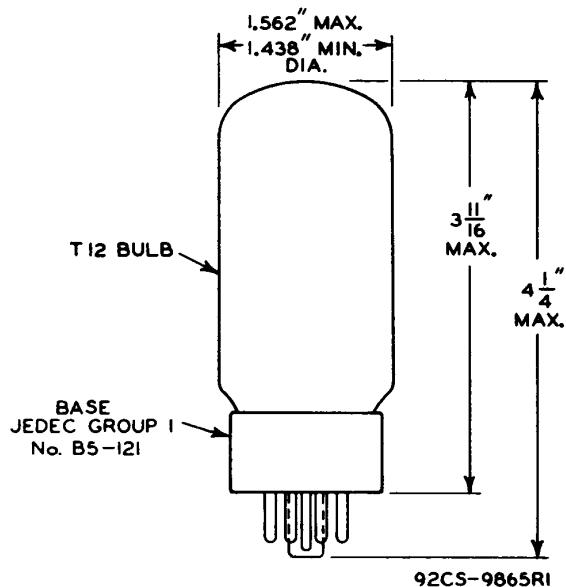
a See accompanying chart *Operating Areas for Simultaneous and Delayed Application of Plate Voltage* for conditions necessitating delay in application of plate voltage until filament has reached operating temperature.

b If hot-switching is required in operation, choke-input circuits are recommended. Such circuits limit the hot-switching current to a value no higher than that of the peak plate current. When capacitor-input circuits are used, a maximum value of 3 amperes should not be exceeded.

c Indicated values for conditions shown will limit peak plate current to the maximum-rated value. When a filter-input capacitor larger than 20 μ f is used, it may be necessary to increase plate-supply impedance to a higher value than that shown in the data to limit the peak plate current to the maximum-rated value.



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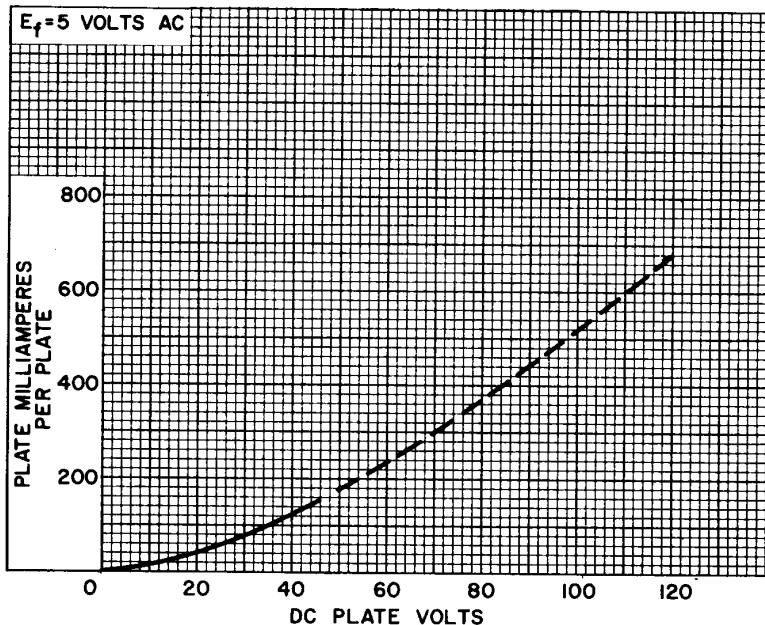
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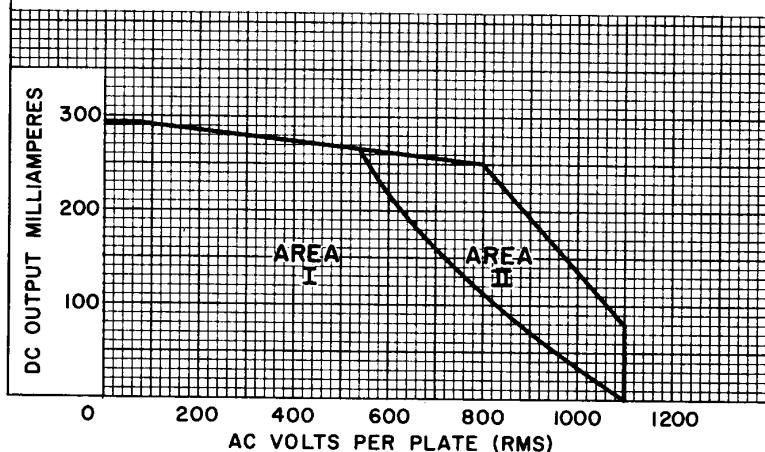
AVERAGE PLATE CHARACTERISTIC



92CS-III83

OPERATING AREAS FOR SIMULTANEOUS AND DELAYED APPLICATION OF PLATE VOLTAGE

FULL-WAVE RECTIFIER SERVICE WITH CAPACITOR-INPUT FILTER.
AREA I—FILAMENT AND PLATE VOLTAGE MAY BE APPLIED
SIMULTANEOUSLY.
AREA II—FILAMENT SHOULD BE ALLOWED TO REACH OPERAT-
ING TEMPERATURE BEFORE PLATE VOLTAGE IS
APPLIED. FOR AVERAGE CONDITIONS, THE DELAY
IS APPROXIMATELY 10 SECONDS.



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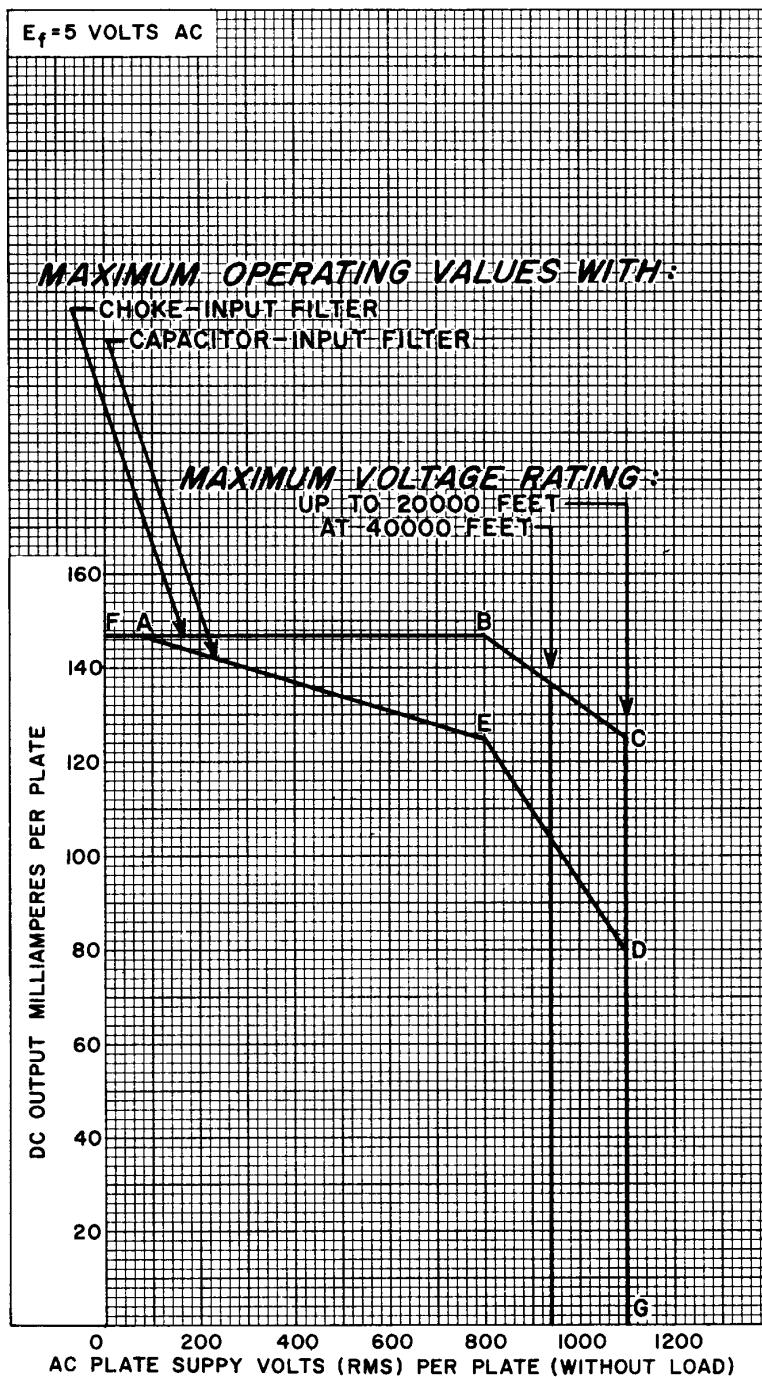
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RATING CHART I



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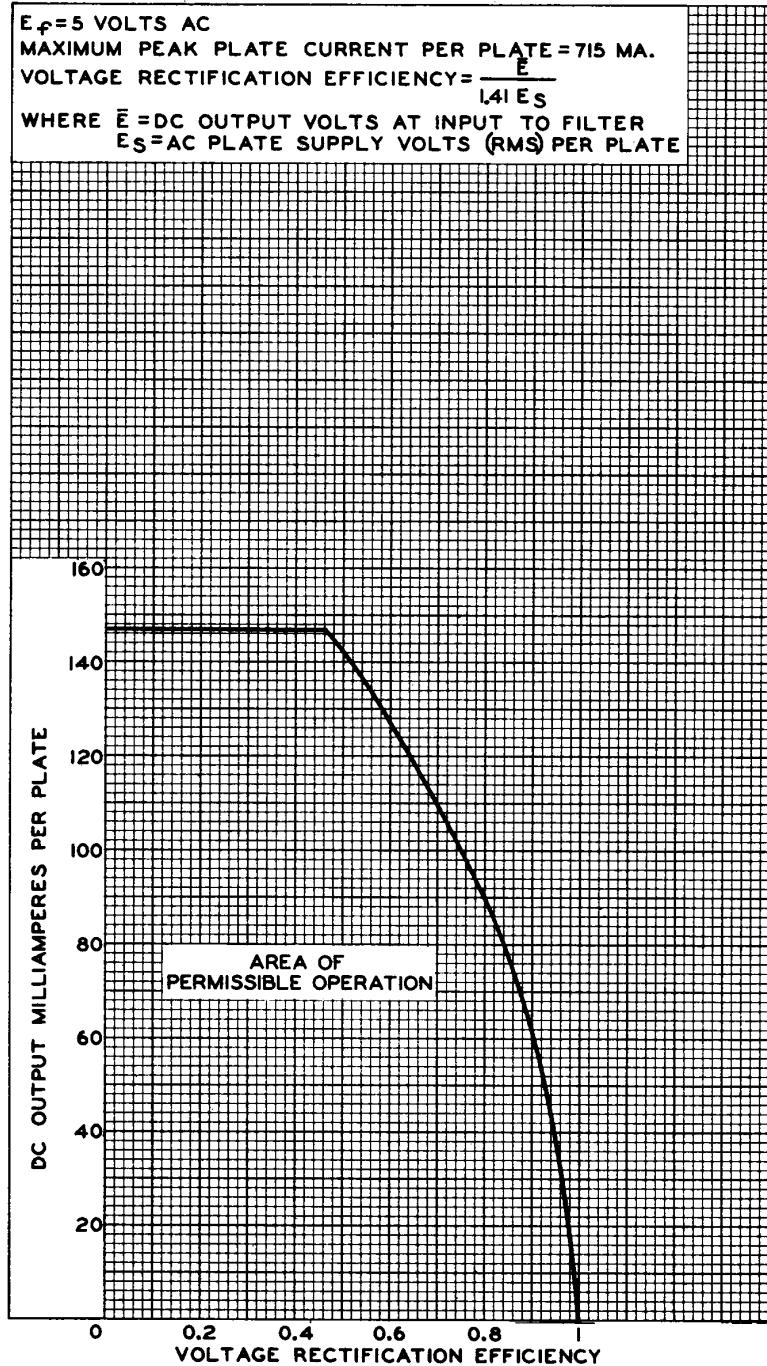
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RATING CHART II With Capacitor-Input Filter

$E_F = 5$ VOLTS AC
MAXIMUM PEAK PLATE CURRENT PER PLATE = 715 MA.
VOLTAGE RECTIFICATION EFFICIENCY = $\frac{E}{E_S}$
WHERE E = DC OUTPUT VOLTS AT INPUT TO FILTER
 E_S = AC PLATE SUPPLY VOLTS (RMS) PER PLATE



92CM-9953RI

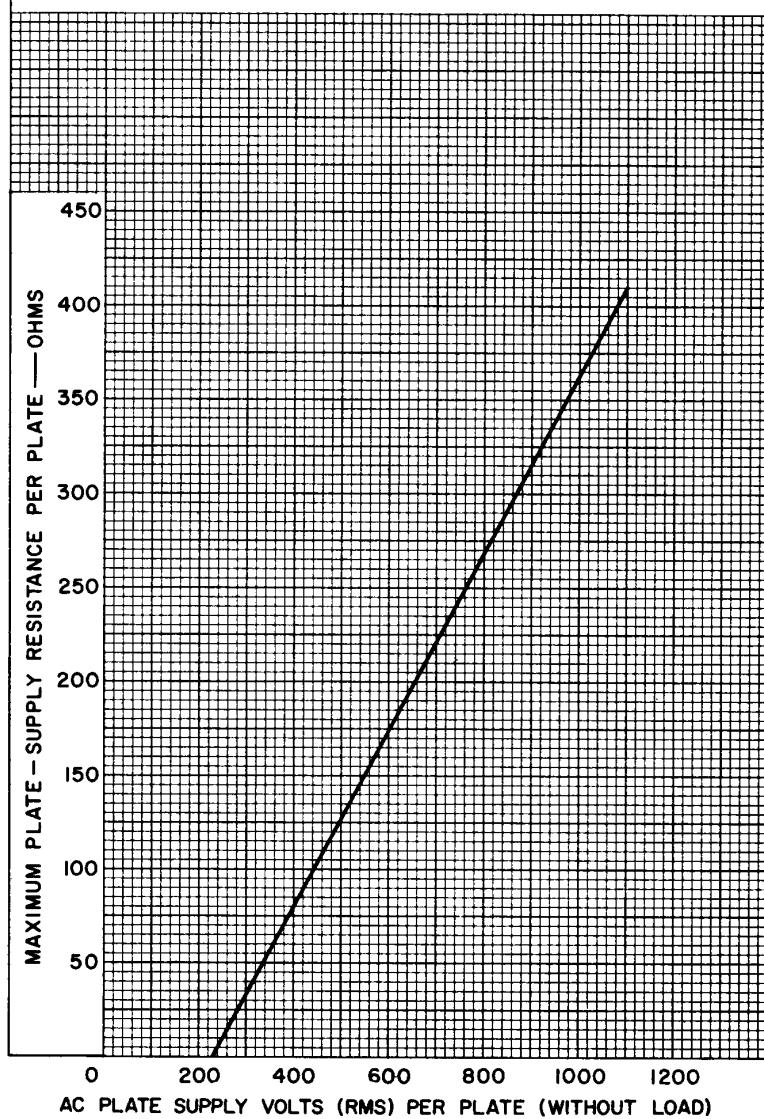
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RATING CHART III With Capacitor-Input Filter

$E_f = 5$ VOLTS AC
MAXIMUM HOT-SWITCHING AMPERES = 3
PLATE-SUPPLY RESISTANCE PER PLATE = $R_{SEC.} + N^2 R_{PRI.} + R_A$
WHERE $R_{SEC.}$ = DC RESISTANCE OF TRANSFORMER
SECONDARY PER SECTION
 $R_{PRI.}$ = DC RESISTANCE OF TRANSFORMER PRIMARY
 R_A = DC RESISTANCE OF ADDED SERIES RESIS-
TANCE PER PLATE
 N = TRANSFORMER - VOLTAGE STEP-UP RATIO
PER SECTION



92CM-6416R4



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